

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA11 | Stoke Mandeville and Aylesbury

Data appendix (LQ-001-011)

Land quality

November 2013

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Department
for Transport

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1 Introduction

- 1.1.1 The land quality appendix for the Stoke Mandeville and Aylesbury community forum area (CFA11) comprises:
- a summary of engagement undertaken (Section 2);
 - detailed risk assessment (Section 3);
 - inspection notes and other site data (Section 4);
 - geological sites of special scientific interest (SSSI) and local geological sites (LGS) (Section 5); and
 - mining and minerals data (Section 6).
- 1.1.2 Maps referred to throughout the land quality appendix are contained in Maps LQ-01-021 to 025 in Volume 5, Land Quality Map Book.

2 Engagement

2.1.1 Table 1 sets out the local authorities and other organisations that have been engaged with during the preparation of the land quality section of the environmental impact assessment (EIA) for this study area, the types of information that have been provided to the assessment team and any specific concerns of those with whom the team engaged.

Table 1: Engagement on land quality issues undertaken for the Stoke Mandeville and Aylesbury study area

Local authority or other organisation	Method/dates of contact	Information provided and/or specific concerns
Aylesbury Vale District Council (AVDC)	Contact via email on: 28 November 2012; 10 December 2012; and 8 February 2013. Contact via telephone on: 6 February 2013.	AVDC supplied the requested data regarding locations of potentially contaminated land within 1km of the route in a geographical information system (GIS) shapefile format.
Buckinghamshire County Council (BuCC)	Contact via email on: 28 November 2012; 3 December 2012; 21 December 2012; 2 January 2013; 23 January 2013; 1 February 2013; 9 February 2013; and 2 May 2013.	Initial email regarding detailed mineral areas for assessing sterilisation of resources and requesting landfill data to provide more detail on what has already been received to assess contamination potential. BuCC responded with links to the Buckinghamshire County Council website. BuCC also supplied GIS data showing preferred areas and landfill data and confirmed it does not have a designated petroleum officer or hold any information on underground storage tanks (UST).
Wycombe District Council (WyDC)	Contact via email on: 28 November 2012; and 4 December 2012.	WyDC supplied requested mapping information (GIS shapefile format) regarding locations of potential contaminated land.
Environment Agency	Contact via email on: 24 April 2013; 15 May 2013; 24 May 2013; 12 June 2013; 14 June 2013; 27 June 2013; and	The Environment Agency has been contacted to supply information on landfills within the study area - data outstanding at the time of production of this report.

Local authority or other organisation	Method/dates of contact	Information provided and/or specific concerns
	8 June 2013.	
Ministry of Defence (MoD)	Contact on unspecified date.	Requests for information on Royal Air Force (RAF) sites in the study area have been made. No information has been received at time of producing this report.

3 Detailed risk assessment

3.1.1 This appendix presents assessments for areas potentially posing a contaminative risk for the Proposed Scheme within the study area. For each site the following data are presented:

- baseline risk assessment;
- construction risk assessment;
- post-construction risk assessment; and
- assessment of temporary (construction) and permanent (post-construction) effects.

3.1.2 This risk assessment incorporates the following assumptions:

- construction workers are not included as part of this assessment;
- sites that have been assessed as potentially posing a contaminative risk to the Proposed Scheme have been grouped and considered together where appropriate. It should be noted that some parcels of land may have had several land uses from different epochs;
- during construction standard mitigation procedures will be in place in accordance with the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000); and
- during the post-construction condition it is assumed that all required remediation has been undertaken and carried out and validated.

3.1.3 The sites assessed in this study area are shown on the Maps LQ-01-021 to 025 Volume 5, Land Quality Map Book.

Table 2: Sites included in the detailed risk assessment within the Stoke Mandeville and Aylesbury study area

Area reference	Area name	Table numbers
11-1	Existing Princes Risborough to Aylesbury Railway	3, 8, 13, 18
11-3	Former Hartwell clay, brick and tile works and landfill	4, 9, 14, 19
11-4	Hartwell landfill	5, 10, 15, 20
11-9	Potentially infilled water features	6, 11, 16, 21
11-17	Former sewage works	7, 12, 17, 22

3.1.4 Contaminant types included within the risk assessments are based on the Priority Contaminants Report CLR 8¹. Although withdrawn, this document is still commonly used and is considered good practice.

¹ Defra and Environment Agency, (2002), *Potential contaminants for the assessment of land- R&D Publication*, Bristol, Environment Agency.

3.1.5 The remainder of this section presents the risk assessment for the sites set out in Table 3 to Table 22. The following acronyms are used in these tables:

- CSM - conceptual site model; and
- VOC - volatile organic compounds.

3.1 Baseline risk assessment

Table 3: Baseline CSM and qualitative risk assessment – existing Princes Risborough to Aylesbury Railway (Area ref 11-1)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Single track railway (at grade) Residual contamination in made ground (e.g. ballast) including heavy metals, oils and asbestos. Low levels of ground gas (methane, carbon dioxide and VOC) in areas of potential landfilling	Controlled waters Largely unproductive groundwater strata within this Area ref 11-1 A small band of Secondary A alluvium aquifer at surface located at the northern end of the site area where it crosses a small unnamed stream	Vertical and lateral migration of contaminated groundwater through culverts	Unlikely	Minor	Very low

Table 4: Baseline CSM and qualitative risk assessment – former Hartwell clay, brick and tile works and landfill (Area ref 11-3)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Clay/brick pits recorded as a landfill and having accepted commercial waste Contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Sensitive land use Hartwell depot scaffolders' yard on-site	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	Likely	Moderate	Moderate
		Inhalation of vapours derived from contaminated groundwater/soil	Likely	Moderate	Moderate
		Exposure to asphyxiative or explosive gases	Likely	Severe	High
	Sensitive land use Adjacent housing	Inhalation/ingestion of or dermal contact with windblown contaminated	Low likelihood	Moderate	Moderate/low

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
		soils/dust			
		Inhalation of vapours derived from contaminated groundwater/soil	Low likelihood	Moderate	Moderate/low
		Exposure to asphyxiative or explosive gases	Low likelihood	Severe	Moderate
	Controlled waters Sedrup ditch	Lateral migration of contaminated groundwater/leachate and surface run-off	Likely	Moderate	Moderate
	Property Building structures on-site (Hartwell depot scaffolders' yard)	Concentration of asphyxiative or explosive gases	Low likelihood	Severe	Moderate
		Direct contact of below ground building structures and services with contaminated groundwater/soil	Likely	Negligible	Low
	Property Adjacent housing	Lateral migration and concentration of asphyxiative or explosive gases	Low likelihood	Severe	Moderate
		Direct contact of below ground building structures and services with contaminated groundwater/soil	Low likelihood	Negligible	Very low

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Table 5: Baseline CSM and qualitative risk assessment – Hartwell landfill (Area ref 11-4)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Recorded as a historical landfill Contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Controlled waters Principal Portland Limestone aquifer at surface	Vertical and lateral migration of contaminated groundwater/leachate	Likely	Moderate	Moderate

Table 6: Baseline CSM and qualitative risk assessment – potentially infilled water features (Area ref 11-9)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Potentially infilled water feature Assuming infilling has occurred, contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Sensitive land use Adjacent housing (farm)	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	Low likelihood	Moderate	Moderate/low
		Inhalation of vapours derived from contaminated groundwater/soil	Unlikely	Moderate	Low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Property Adjacent farm buildings	Lateral migration and concentration of asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
		Direct contact of below ground building structures and services with	Unlikely	Negligible	Very low

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
		contaminated groundwater			

Table 7: Baseline CSM and qualitative risk assessment – former sewage works (Area ref 11-17)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Heavy metals, organic compounds e.g. oils, pathogens from sludge which may have been spreading on surrounding land. Also methane, carbon dioxide and VOC if sludge was buried	Controlled waters	Vertical and lateral migration of contaminated groundwater	Low likelihood	Minor	Low
	Secondary undifferentiated head deposits aquifer at surface on-site				
	Secondary A alluvium aquifer at surface adjacent to site				
	Controlled waters	Lateral migration of contaminated groundwater	Likely	Minor	Moderate/low
	Hartwell ditch within 50m	Surface run-off	Likely	Minor	Moderate/low

3.2 Construction risk assessment

Table 8: Construction CSM and qualitative risk assessment – existing Princes Risborough to Aylesbury Railway (Area ref 11-1)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
<p>Single track railway (at grade)</p> <p>Residual contamination in made ground (e.g. ballast) including heavy metals, oils and asbestos. Low levels of ground gas (methane, carbon dioxide and VOC) in areas of potential landfilling</p>	<p>Controlled waters</p> <p>Largely unproductive groundwater strata within this Area ref 11-1</p> <p>A small band of Secondary A alluvium aquifer at surface located at the northern end of the site area where it crosses a small unnamed stream</p>	Vertical and lateral migration of contaminated groundwater through culverts	Low likelihood	Minor	Low

Table 9: Construction CSM and qualitative risk assessment – former Hartwell clay, brick and tile works and landfill (Area ref 11-3)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
<p>Clay/brick pits recorded as a landfill and having accepted commercial waste</p> <p>Contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)</p>	<p>Sensitive land use</p> <p>Hartwell depot scaffolders' yard on-site</p>	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None
		Inhalation of vapours derived from contaminated groundwater/soil	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None
		Exposure to asphyxiative or explosive gases	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
	Sensitive land use Adjacent housing	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	Low likelihood	Moderate	Moderate/low
		Inhalation of vapours derived from contaminated groundwater/soil	Low likelihood	Moderate	Moderate/low
		Exposure to asphyxiative or explosive gases	Low likelihood	Severe	Moderate
	Controlled waters Sedrup ditch	Lateral migration of contaminated groundwater/leachate and surface run-off	Likely	Moderate	Moderate
	Property Building structures on-site (Hartwell depot scaffolders' yard)	None (Hartwell depot scheduled for demolition)	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None
		Direct contact of below ground building structures and services with contaminated groundwater/soil	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None
	Property Adjacent housing	Lateral migration and concentration of asphyxiative or explosive gases	Low likelihood	Severe	Moderate
		Direct contact of below ground building structures and services with contaminated	Low likelihood	Negligible	Very low

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
		groundwater/soil			

Table 10: Construction CSM and qualitative risk assessment – Hartwell landfill (Area ref 11-4)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Recorded as a historical landfill Contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Controlled waters Principal Portland Limestone aquifer at surface	Vertical and lateral migration of contaminated groundwater/leachate	High likelihood	Moderate	High

Table 11: Construction CSM and qualitative risk assessment – potentially infilled water features (Area ref 11-9)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Potentially infilled water feature Assuming infilling has occurred, contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Sensitive land use Adjacent housing (farm)	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	Low likelihood	Moderate	Moderate/low
		Inhalation of vapours derived from contaminated groundwater/soil	Unlikely	Moderate	Low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
	Property Adjacent farm buildings	Lateral migration and concentration of asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
		Direct contact of below ground building structures and services with contaminated groundwater	Unlikely	Negligible	Very low

Table 12: Construction CSM and qualitative risk assessment – former sewage works (Area ref 11-17)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Heavy metals, organic compounds e.g. oils, pathogens from sludge which may have been spreading on surrounding land. Also methane, carbon dioxide and VOC if sludge was buried	Controlled waters	Vertical and lateral migration of contaminated groundwater	Low likelihood	Minor	Low
	Secondary undifferentiated head deposits aquifer at surface on-site				
	Secondary A alluvium aquifer at surface adjacent to site				
	Controlled waters Hartwell ditch within 50m	Lateral migration of contaminated groundwater	Likely	Minor	Moderate/low
		Surface run-off	Likely	Minor	Moderate/low

3.3 Post-construction risk assessment

Table 13: Post-Construction CSM and qualitative risk assessment – existing Princes Risborough to Aylesbury Railway (Area ref 11-1)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Former railway line (at grade) Residual contamination in made ground (e.g. ballast) including heavy metals, oils and asbestos. Low levels of ground gas (methane, carbon dioxide and VOC) in areas of potential landfilling	Controlled waters Largely unproductive groundwater strata within this Area ref 11-1 A small band of Secondary A alluvium aquifer at surface located at the northern end of the site area where it crosses a small unnamed stream	Vertical and lateral migration of contaminated groundwater through culverts	Unlikely	Minor	Very low

Table 14: Post-Construction CSM and qualitative risk assessment – former Hartwell clay, brick and tile works and landfill (Area ref 11-3)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Clay/brick pits recorded as a landfill and having accepted commercial waste Contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Sensitive land use Hartwell depot scaffolders' yard on-site	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None
		Inhalation of vapours derived from contaminated groundwater/soil	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None
		Exposure to asphyxiative or explosive gases	No contaminant linkage (receptor scheduled for demolition)	No contaminant linkage	None

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
	Sensitive land use Adjacent housing	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	Low likelihood	Moderate	Moderate/low
		Inhalation of vapours derived from contaminated groundwater/soil	Low likelihood	Moderate	Moderate/low
		Exposure to asphyxiative or explosive gases	Low likelihood	Severe	Moderate
	Controlled waters Sedrup ditch	Lateral migration of contaminated groundwater/leachate and surface run-off	Likely	Moderate	Moderate
	Property Building structures on-site (Hartwell depot scaffolders' yard)	None (Hartwell depot scheduled for demolition)	No contaminant linkage	No contaminant linkage	None
		Direct contact of below ground building structures and services with contaminated groundwater/soil	No contaminant linkage	No contaminant linkage	None
	Property Adjacent housing	Lateral migration and concentration of asphyxiative or explosive gases	Low likelihood	Severe	Moderate
		Direct contact of below ground building structures and services with contaminated groundwater/soil	Low likelihood	Negligible	Very low

Table 15: Post-Construction CSM and qualitative risk assessment – Hartwell landfill (Area ref 11-4)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Recorded as a historical landfill Contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Controlled waters Principal Portland Limestone aquifer at surface	Vertical and lateral migration of contaminated groundwater/leachate	Likely	Moderate	Moderate

Table 16: Post Construction CSM and qualitative risk assessment – potentially infilled water features (Area ref 11-9)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Potentially infilled water feature Assuming infilling has occurred, contaminants that could be present include, but are not limited to: heavy metals, asbestos, organic compounds e.g. oils, inorganic compounds e.g. ammoniacal nitrogen and chloride, and ground gases (largely methane, carbon dioxide and VOC)	Sensitive land use Adjacent housing (farm)	Inhalation/ingestion of or dermal contact with windblown contaminated soils/dust	Low likelihood	Moderate	Moderate/low
		Inhalation of vapours derived from contaminated groundwater/soil	Unlikely	Moderate	Low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Property Adjacent farm buildings	Lateral migration and concentration of asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
		Direct contact of below	Unlikely	Negligible	Very low

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
		ground building structures and services with contaminated groundwater			

Table 17: Post Construction CSM and qualitative risk assessment – former sewage works (Area ref 11-17)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent mitigation
Heavy metals, organic compounds e.g. oils, pathogens from sludge which may have been spreading on surrounding land. Also methane, carbon dioxide and VOC if sludge was buried	Controlled waters	Vertical and lateral migration of contaminated groundwater	Low likelihood	Minor	Low
	Secondary undifferentiated head deposits aquifer at surface on-site				
	Secondary A alluvium aquifer at surface adjacent to site				
	Controlled waters	Lateral migration of contaminated groundwater	Likely	Minor	Moderate/low
	Hartwell ditch within 50m	Surface run-off	Likely	Minor	Moderate/low

3.4 Assessment of temporary (construction) and permanent (post-construction) effects

Table 18: Significance of impact during construction and post construction – existing Princes Risborough to Aylesbury Railway (Area ref 11-1)

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Vertical and lateral migration of contaminated groundwater into the Secondary A aquifer at surface	Very low	Low	Very low	Minor adverse effect	Negligible
Overall significance				Minor adverse effect	Negligible

Table 19: Significance of impact during construction and post construction – former Hartwell clay, brick and tile works and landfill (Area ref 11-3)

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Inhalation/ingestion/dermal contact of contaminated soils/dusts by on-site scaffolders' yard employees	Moderate	None	None	Major beneficial effect	Major beneficial effect
Inhalation of vapours derived from contaminated groundwater/soil by on-site scaffolders' yard employees	Moderate	None	None	Major beneficial effect	Major beneficial effect
Exposure to asphyxiative or explosive gases by on-site scaffolders' yard employees	High	None	None	Major beneficial effect	Major beneficial effect
Inhalation/ingestion/dermal contact of contaminated soils/dusts by adjacent residents	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Inhalation of vapours derived from contaminated groundwater/soil by adjacent residents	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure to asphyxiative or explosive gases by adjacent residents	Moderate	Moderate/low	Moderate/low	Negligible	Negligible
Lateral migration of contaminated groundwater/leachate and surface run-off into the Sedrup ditch (on-site)	Moderate	Moderate	Moderate	Negligible	Negligible

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Concentration of asphyxiative or explosive gases in on-site building structures	Moderate	None	None	Major beneficial effect	Major beneficial effect
Direct contact of below ground building structures and services on-site with contaminated groundwater/soil	Low	None	None	Minor beneficial effect	Minor beneficial effect
Lateral migration and concentration of asphyxiative or explosive gases in adjacent building structures	Moderate	Moderate	Moderate	Negligible	Negligible
Direct contact of below ground building structures and services adjacent with contaminated groundwater/soil	Very low	Very low	Very low	Negligible	Negligible
Overall significance				Negligible	Negligible

Table 20: Significance of impact during construction and post construction – Hartwell landfill (Area ref 11-4)

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Vertical and lateral migration of contaminated groundwater/leachate into the Principal Portland Limestone aquifer at surface	Moderate	High	Moderate	Minor adverse effect	Negligible
Overall significance				Minor adverse effect	Negligible

Table 21: Significance of impact during construction and post construction – potentially infilled water features (Area ref 11-9)

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Inhalation/ingestion/dermal contact of contaminated soils/dusts by adjacent residents	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Inhalation of vapours derived from contaminated groundwater/soil by adjacent residents	Low	Low	Low	Negligible	Negligible
Exposure to asphyxiative or explosive gases by adjacent residents	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Lateral migration and concentration of asphyxiative or explosive gases in adjacent building structures	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Direct contact of below ground building structures and services adjacent with contaminated groundwater/soil	Very low	Very low	Very low	Negligible	Negligible
Overall significance				Negligible	Negligible

Table 22: Significance of impact during construction and post construction – former sewage works (Area ref 11-17)

Contaminant linkage	Baseline risk	Construction risk	Post-construction risk	Construction effects	Post-construction effects
Vertical and lateral migration of contaminated groundwater into the Secondary undifferentiated head and Secondary A alluvium aquifers at surface	Low	Low	Low	Negligible	Negligible
Lateral migration of contaminated groundwater into Hartwell ditch	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Lateral migration of contaminated surface run-off into Hartwell ditch	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Overall significance				Negligible	Negligible

4 Inspections notes and other site data

4.1.1 This appendix presents site inspection notes for those key potentially contaminated sites visited during the study period. No other site data were obtained.

Table 23: Site inspection notes from Area ref 11-4

Inspection location (Land parcel ref: BM320993)	Details	
Area ref number	11-4	
Date of inspection	30 January 2013	
Site location	Land north-east of Calley Farm, Hartwell Aylesbury, Buckinghamshire, HP17 8QN	
Site access	Authorised access through Calley farm property on foot	
Site description	Recorded former landfill now an open field, no buildings	
Topography and surroundings - elevation in relation to surroundings, hummocks and breaks of slope	Flat terrain, surrounded by fields, no buildings	
Neighbouring site use (in particular note any potentially contaminative activities or sensitive receptors)	north	Fields
	south	Fields
	east	Fields
	west	Fields
Site buildings - extent, size, type and usage. Boiler rooms, electrical switchgear	None	
Ground surfacing - type and condition	Grass field. No surfacing	
Vegetation - evidence of distress, unusual growth or invasive species	No evidence of distress observed	
Evidence of ground contamination	None observed	
Services - evidence of buried services	None observed	

5 Geological sites of special scientific interest and local geological sites

- 5.1.1 One Local Geological Site (LGS) has been identified in the study area by Buckinghamshire County Council as an LGS. The perimeter walls at the Hartwell estate have been identified as they are constructed of Portland Stone containing the remains of the distinctive large ammonite *Titanites giganteus*. These are located approximately 185m south of the route, following the A418 between Stone and Aylesbury, shown on Map LQ-01-023, grid ref D9, Volume 5, Land Quality Map Book.

6 Mining and minerals data

- 6.1.1 The Buckinghamshire Minerals and Waste Core Strategy development plan document², confirms that the route will not pass through any MSA, mineral consultation areas or sites of current extraction.
- 6.1.2 There are no known mining or quarrying activities within the study area.

² Buckinghamshire County Council, (2011), *Minerals and Waste Core Strategy*, Adopted November 2012.

7 References

Defra and Environment Agency, (2002), *Potential contaminants for the assessment of land- R&D Publication*, Bristol, Environment Agency.

Buckinghamshire County Council, (2011), *Minerals and Waste Core Strategy*, Adopted November 2012.